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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/360,582	07/26/1999	BRANDON W. BLACKBURN	MIT-8312	4382

7590 12/26/2007  
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EXAMINER
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MONDT, JOHANNES P

ART UNIT	PAPER NUMBER
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3663

MAIL DATE	DELIVERY MODE
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12/26/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Advisory Action</b> <b>Before the Filing of an Appeal Brief</b>	Application No.	Applicant(s)	
	09/360,582	BLACKBURN, BRANDON W.	
	Examiner	Art Unit	
	Johannes P. Mondt	3663	

**--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

THE REPLY FILED 06 December 2007 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:

- a) ☐ The period for reply expires \_\_\_\_\_ months from the mailing date of the final rejection.  
b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on \_\_\_\_\_. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

#### AMENDMENTS

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because  
(a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);  
(b) ☐ They raise the issue of new matter (see NOTE below);  
(c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or  
(d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: \_\_\_\_\_. (See 37 CFR 1.116 and 41.33(a)).

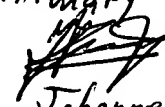
4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).  
5. ☐ Applicant's reply has overcome the following rejection(s): \_\_\_\_\_.  
6. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).  
7. ☒ For purposes of appeal, the proposed amendment(s): a) ☒ will not be entered, or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.  
The status of the claim(s) is (or will be) as follows:  
Claim(s) allowed: \_\_\_\_\_.  
Claim(s) objected to: \_\_\_\_\_.  
Claim(s) rejected: 1, 4, 5, 7 and 8.  
Claim(s) withdrawn from consideration: \_\_\_\_\_.

#### AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).  
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).  
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

#### REQUEST FOR RECONSIDERATION/OTHER

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because:  
See Continuation Sheet.  
12. ☐ Note the attached Information Disclosure Statement(s). (PTO/SB/08) Paper No(s). \_\_\_\_\_.  
13. ☐ Other: \_\_\_\_\_.

*Palmyra Examiner:*  
  
 Johannes Mondt  
 (12/17/09)

Continuation of 11. does NOT place the application in condition for allowance because: The Request for Reconsideration fails to persuade for the following reasons:

(A) Comments in traverse of the rejection of claims 1, 4, 5, 7 and 8 under 35 U.S.C. 112, first paragraph, on cross-sectional illustration are not persuasive because a cross-sectional illustration only can show overlap, not three-dimensional containment; Applicant's comments in traverse of said rejection based on his teaching that the liquid gallium fills the chamber 40 and does not teach partial fill are not persuasive because the absence of a teaching of partial (incomplete) fill does not imply the teaching of a complete fill. Examiner also maintains that the jet-liquid surface configuration by Pais et al shows that a jet from a nozzle can be submerged without the nozzle being submerged, with reference to Figure 1. The fragment in Pais et al cited by applicant (first sentence of third paragraph of page 182) pertains to a case distinction, not an overall statement. Finally on applicant's comments in traverse of this rejection, pages 7 and 8 are by no means the only locations where the original specification could have disclosed the new limitations, but it would have been a natural one given the subject matter. Applicant has failed to show where else the newly introduced limitations may have been disclosed. Therefore, the rejection under 35 USC 112, first paragraph, stands.

(B) Comments in traverse of the rejection of claim 1 under 35 USC 103(a), applicant's traverse of motivation based on the material constitution of the wall are not persuasive for all of the reasons provided in "Argument D" on page 14 of the Final Office Action, - including reasons that have nothing to do with a copper or aluminum material embodiment but simply with the obviousness to adjust the material embodiment of a wall with a change in the material constitution of the coolant, and on which applicant does not even comment, on account of which applicant's comments in traverse and applicant's after-final response may be considered non-responsive. All of said reasons are herewith included by reference in their entirety. It is further noted that the argument on temperature now submitted as specific traverse for copper containment of liquid gallium is contradicted by applicant's previous statement that "liquid gallium dissolves aluminum or copper in a matter of minutes or a few hours depending on temperature", once again repeated in After-Final Remarks, in which statement the temperature dependence has been taken into account. Also, the specification does not provide a range of temperature during operation. Furthermore, said argument on temperature, at least in light of the above previous statement, is both new and incorrect, as witnessed, for instance by the use of liquid gallium - copper connections in a neutron source, specifically a pulsed thermonuclear device, as witnessed by Filatov (RU 2069391)(see abstract). Applicant is reminded that a thermonuclear device inherently is a neutron source except for the truly exceptional and non-conventional case of aneutronic fusion, while the liquid gallium in Filatov carries considerable current. Finally, counter to Applicant's traverse that Alger only teaches that liquid coolant may pass through the heat exchanger, Alger teaches that it actually does so (Figure 1), whereupon returning to the reservoir the claimed serial circulation is completed. Therefore, said traverse fails to persuade.

(C) Comments in traverse of the rejection of claim 1 under 35 USC 103(a), applicant's argument in traverse of motivation based on the material constitution of the wall are not persuasive for all of the reasons provided in "Argument D" on page 14 of the Final Office Action, - including reasons that have nothing to do with a copper or aluminum material embodiment but simply with the obviousness to adjust the material embodiment of a wall with a change in the material constitution of the coolant, and on which applicant does not even comment, on account of which applicant's comments in traverse and applicant's after-final response may be considered non-responsive. All of said reasons are herewith included by reference in their entirety. It is further noted that the argument on temperature now submitted as specific traverse for copper containment of liquid gallium is contradicted by applicant's previous statement that "liquid gallium dissolves aluminum or copper in a matter of minutes or a few hours depending on temperature", once again repeated in After-Final Remarks, in which statement the temperature dependence has been taken into account. Also, the specification does not provide a range of temperature during operation. Furthermore, said argument on temperature, at least in light of the above previous statement, is both new and incorrect, as witnessed, for instance by the use of liquid gallium - copper connections in a neutron source, specifically a pulsed thermonuclear device, as witnessed by Filatov (RU 2069391)(see abstract). Applicant is reminded that a thermonuclear device inherently is a neutron source except for the truly exceptional and non-conventional case of aneutronic fusion, while the liquid gallium in Filatov carries considerable current. Therefore, the above argument of traverse fails to persuade.

(D) Counter to Applicant's traverse that Alger only teaches that liquid coolant may pass through the heat exchanger, Alger teaches that it actually does so (Figure 1), whereupon returning to the reservoir the claimed serial circulation is completed. In conclusion, there is not question that a serial flow from the neutron source to a heat exchanger and from heat exchanger to reservoir is disclosed in Alger. As to the adverb "directly", in light of the Specification as disclosed, wherein the adverb "directly" has not been directly defined within the context of the pertinent limitation "directly to a heat exchanger" the Drawings only make it clear that "directly" cannot mean "without any component interposed; see Figure 1 and components 26 and 28; while "directly" is interpretable as "in the manner of direct variation" (cf. Merriam-Webster's Collegiate Dictionary, tenth Edition, p. 328), which is met because the liquid gallium in Alger can be said to flow from the neutron source to the heat exchanger and from the heat exchanger to the reservoir. Hence also this argument fails to persuade.

Finally, in response to applicant's comment on page 12, first three lines, both Filatov above and Morel et al are cited, respectively here in response to applicant's demand, and in the final office action, to establish fact, not teaching; hence Morel et al is correctly not included in the ground for rejection under 35 USC 103(a).

In conclusion, applicant's arguments fail to persuade and the rejections under 35 USC 103(a) stand...